



MPOX CASES (previously known as Monkeypox)

(See also [MPOX OUTBREAKS](#))

1. **Agent:** Mpox virus, belongs to the *Orthopoxvirus* genus in the family *Poxviridae*.

2. Identification:

- a. **Symptoms:** In humans, the symptoms of mpox are similar to but milder than the symptoms of smallpox. Mpox prodromal symptoms can include fever ($\geq 100.4^{\circ}\text{F}$), headache, muscle aches, backache, swollen lymph nodes, chills, exhaustion, rash and sometimes sore throat, nasal congestion and cough. The swelling of the lymph nodes may be generalized or localized to several areas. Prodromal symptoms can occur before rash but may occur after rash or not be present at all. Rectal symptoms such as pain, bleeding or purulent or bloody stools have been reported. Rash may be located on or near the genitals or anus and could be on other areas like the hands, feet, chest, face or mouth.

Lesions are firm or rubbery, well-circumscribed, deep-seated, and often develop umbilication. Lesions typically develop simultaneously and evolve together on any given part of the body. They are often described as painful until crusts form. Lesions progress through the following stages before falling off:

1. Enanthem: first lesions develop on the tongue and in the mouth.
2. Macules (1-2 days): starting on the face and spreading to the arms and legs and then to the hands and feet, including the palms and soles. The rash typically spreads to all parts of the body within 24 hours becoming most concentrated on the face, arms, and legs (centrifugal distribution).
3. Papules (1-2 days): by the third day of rash, lesions have progressed from macular (flat) to papular (raised).
4. Vesicles (1-2 days): by the fourth to fifth day, lesions have become vesicular (raised and filled with clear fluid).
5. Pustules (5-7 days): by the sixth to seventh day, lesions have become

pustular (filled with opaque fluid), sharply raised, usually round, and firm to the touch (deep seated). Lesions will develop a depression in the center (umbilication). Pustules will remain for approximately 5-7 days before beginning to crust.

6. Scabs (7-14 days): by the end of the second week, pustules have crusted and scabbed over. Scabs will remain for about a week before beginning to fall off.

The illness typically lasts for 2-4 weeks. If vaccinated for smallpox or mpox, the rash may be more pleomorphic and not in a uniform stage of development.

- b. **Differential Diagnosis:** Although there are other causes of generalized rash illness which present as vesicles and pustules, the severe prodrome along with the nature of the rash, lymphadenopathy and its evolution distinguishes mpox from other diseases. The diseases, which can look similar to mpox, include: smallpox, Tanapox, parapoxvirus infections (orf orbovine stomatitis), varicella, disseminated herpes simplex, disseminated herpes zoster, drug eruptions, contact dermatitis, measles, hand foot and mouth disease, bacterial skin infections, syphilis, scabies, , and anthrax.

- c. **Diagnosis:** Diagnosis can be made with laboratory molecular testing by orthopoxvirus DNA by polymerase chain reaction (PCR). Confirmatory testing can be made with Mpox virus DNA PCR or Next-Generation sequencing.

3. **Incubation:** usually 3-17 days but can range from 3-21 days.

4. **Reservoir:** Human infections have been documented through the handling of infected monkeys, Gambian giant rats and squirrels, and rodents (most likely reservoir).

5. **Source:** Macules, papules, vesicles, pustules, and scabs on the skin and tongue and in the mouth of humans. Also, direct contact with



body fluids or lesion material of infected animal or indirect contact with lesion material, such as through contaminated bedding.

6. **Transmission:** Transmission occurs when a person comes into contact with the virus from an animal, human, or materials contaminated with the virus. The virus enters the body through broken skin (even if not visible), respiratory tract, or the mucous membranes (eyes, nose, or mouth).

Human-to-human transmission can occur through: direct contact with infectious rash, scabs or bodily fluids, as well as respiratory secretions during prolonged, face-to-face contact, or during intimate physical contact such as kissing, cuddling or sex, and indirect contact with lesion material, such as through contaminated clothing or linens. Pregnant people can spread the virus to their fetus through the placenta.

Animal-to-human transmission may occur by through direct contact with infectious rash, scabs, crusts or fluids from sores, saliva or infected bodily fluids, including respiratory secretions. Urine and feces can also contain infectious particles. Transmission can also occur through bite or scratch, eating or preparation of bush meat or using products from an infected animal.

7. **Communicability:** A person can be infectious from up to four days before their symptoms appear until all scabs have separated, the rash has fully healed, and a fresh layer of skin has formed. The illness typically lasts 2-4 weeks.
8. **Specific treatment:** There are no treatments specifically for mpox virus infections. However, mpox and smallpox viruses are genetically similar, which means that antiviral drugs and vaccines developed to protect against smallpox may be used to prevent and treat mpox virus infections. Antivirals, such as tecovirimat (TPOXX), may be recommended for people who are more likely to get severely ill, like patients with weakened immune systems or skin conditions. Please note, TPOXX should be taken within 30 minutes after a full meal containing moderate or high fat, so supporting clients to ensure they are aware and have consistent access to high fat foods

may be needed. See DPH website for Guidance for Treatment: [LAC DPH Mpox Treatment Provider Hub](#)

9. **Immunity:** Unknown at this time, pending more research data.
10. **Risk Factors for Severe Disease:** Although most mpox cases have been self-limited, occurrences of severe manifestations and death have been observed in the United States, particularly in persons with AIDS (CD4<200). In cases with severe disease, or with ongoing disease despite treatment, providers may need to extend tecovirimat (TPOXX) treatment beyond 14 days and escalate therapy to include other available treatments. For cases with HIV disease who are not on antiretroviral therapy (ART), providers should initiate ART as soon as possible. All sexually active cases with suspected or confirmed mpox should be tested for HIV at the time of testing for mpox, or as soon as possible once diagnosed if not already done at time of mpox testing, unless the case is already known to have HIV infection.

REPORTING PROCEDURES

1. **Report all mpox or orthopoxvirus infections, hospitalizations, and deaths within 1 working day from identification** (Title 17, Section 2500. *California Code of Regulations*).
 - A. Report cases online via the LAC DPH secure mpox reporting portal: [RedCap Survey mpox Report](#)
 - B. **If hospitalized patients are severe or worsening clinically**, such as being admitted to the ICU, providers are asked to please contact the LAC DPH healthcare provider line for clinical consultation and to access additional therapeutic options.
 - Weekdays 8:30am-5pm: call 213-240-7941.
 - Weekends and holidays 8:00am-5pm: call 213-974-1234 and ask for the physician on call.
 - Evenings for urgent situations only: call 213-974-1234 and ask for the physician on call.



C. Confidential Morbidity Report may be submitted via fax if cannot submit online. See instructions on [Confidential Morbidity Report](#)

D. Contact LAC DPH Public Health Laboratory (PHL) Bioterrorism Response Unit at 562-658-1360 for specific questions on specimen packaging and submission to PHL. After-hours County Operator: 213-974-1234 (ask for Public Health Lab Director). PHL test request forms can be downloaded at [Test Request Form](#).

E. Any laboratory that receives a specimen for mpox testing is required to report to the California Department of Public Health Microbial Diseases Laboratory immediately (Title 17, Section 2505, *California Code of Regulations*).

2. Report Forms:

Mpox REDCap Case Interview Form – See REDCap link in IRIS under Case Manage DI tab

[Mpox Contact Listing Form](#)¹ [\(used during case interview\)](#)

Mpox REDCap Contact Monitoring Form – See REDCap link in IRIS under Case Manage CI tab

3. Epidemiologic Data:

- a. Exposure to a suspect, probable or confirmed human case of mpox.
- b. Attendance at social gatherings, events or venues where there is direct, personal, often skin-to-skin contact and/or intimate sexual contact
- c. Healthcare worker occupational exposure
- d. Exposure to an exotic or wild mammalian pet with clinical signs of illness (e.g. conjunctivitis, respiratory symptoms, and/or rash).

e. Exposure to an exotic or wild mammalian pet with or without clinical signs of illness that has been in contact with a case of mpox either in a mammalian pet; or a human with mpox.

f. History of travel in 21 days prior to onset, returning from endemic regions, or countries experiencing an outbreak (see [CDC mpox Outbreak Global Map](#)).

CONTROL OF CASE, CONTACTS & CARRIERS

Personnel designated for case interviews and contact investigation should attempt to interview and case manage cases via phone calls. If a face-to-face visit is required, personnel must wear proper PPE for airborne and droplet precaution including gown, gloves, N95 or respirator, and eye protection when interviewing cases and contacts. Initial investigation will be conducted immediately upon notification by ACDC.

CASE:

1. Interview case by phone:
 - Places visited by the case during the 21 days before symptom onset, including; travel, social events, health care provider offices, clinics, emergency departments, work, school, and regular as well as occasional activities.
 - Places visited by the case during the infectious period (four days before symptom onset until lesions resolve), including; travel, social events, health care provider offices, clinics, emergency departments, work, school, and regular as well as occasional activities.
 - Sexual partners
 - Symptoms and onset date.

Contacts to Case:

- Detailed name and contact information for all persons (including sexual, intimate, household, visitors to home, work, medical/dental clinics visited including urgent care/clinics/hospitals, physical

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<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/MpoxContactListing.xlsx>



therapy, masseuse) with whom the case had contact during the infectious period.

- For all high/intermediate risk contacts (See Appendix 1a and 1b) including sexual, household, intimate, work, or HCW exposure which occurred while providing medical care at a healthcare facility – send contact information to Morbidity to enter as a contact.
 - If case could not provide address of the contacts, Morbidity will search for their address in database. If no address is found, it will be sent back to CFS to call the contacts, obtain address, and resend the contact line list to Morbidity.
2. Educate the case on isolation and discontinuation of isolation.
 3. Assess for wrap around services needed. Recommend HIV/STD testing every 3 months if sexually active MSM or transgender patient. Recommend HIV pre-exposure prophylaxis (PrEP) if case HIV negative. Referrals can be made to select DPH sexual health clinics or DPH funded PrEP Centers of Excellence at <http://getprepla.com/centers-of-excellence/>.
 4. If case reports their lesions have resolved, the scabs have fallen off, and a fresh layer of intact skin has formed, case can discontinue isolation.
 5. If no contact is made within 24 hours and 3 virtual attempts were made throughout the day and record search conducted, refer to MD/ND 144.
 6. Single cases in certain settings (i.e. SNF, K-12 schools, early care and education (ECE) programs, camps, and other community settings serving children or adolescents such as sports leagues and after-school programs) may require additional follow-up if high or intermediate exposure occurred (refer to Appendix 1a) in consultation with AMD. Refer to the following for recommendations based on the setting:
 - SNF – refer to Guidance for Long Term Care Facilities (LTCFs): Skilled Nursing Facilities (SNFs) and Community Care Facilities (CCFs) [LAC DPH 2022 Mpox Shelter Guidance](#)

- Schools, ECE, camps and other settings: [LAC DPH Mpox Resources Education](#)
- Single case investigation to be done with venue to assess the situation, to ensure there are not more cases, and to offer vaccine where appropriate.
- May warrant PEP vaccine at the site based on exposure risk levels and vaccine availability. Vaccine will be offered based on results of investigation.

MONITORING CONTACTS:

1. Contacts should be actively monitored for symptoms (fever ≥ 100.4 , lymphadenopathy, rash) for 21 days after last exposure. (See Appendix 1 for schedule based on risk level)
 1. High and Intermediate Risk – on 3 separate occasions:
 - i. Initial calls to newly identified High or Intermediate Risk contacts will be made by CFS.
 - ii. 10-14 days from last exposure, ACDC sends a text message to assess symptom development
 - iii. 21 days from last exposure, ACDC sends a text message to assess symptom development
 2. Low Risk – no monitoring
2. Determine risk level and determine need of post-exposure prophylaxis (PEP) of contact.
3. Phone contact to confirm exposure to the case, determine risk level, and determine the presence or absence of symptoms and offer PEP if meets criteria (High or Intermediate Risk). Refer to Appendix 1a or 1b for PEP recommendations for different risk levels.
4. Instruct contact to monitor temperature twice daily and to contact PHI immediately if symptoms develop.
5. If contact is or becomes symptomatic, instruct contact to self-isolate and assess for which symptoms the contact is reporting (fever, rash, lymphadenopathy) and refer to MD/ND 144.
6. CFS will be notified immediately if symptoms are reported on Day 10-14 and Day 21 text message assessment.
7. If no contact is made within 3 days and record search conducted, refer to MD/ND 144.



8. For PEH PUI, refer to MD/ND 144.
9. Recommend HIV/STD testing every 3 months if sexually active MSM or transgender patient. Recommend HIV pre-exposure prophylaxis (PrEP) if contact not known to be HIV positive. Referrals can be made to select DPH sexual health clinics or DPH funded PrEP Centers of Excellence at <http://getprepla.com/centers-of-excellence/>

CARRIERS: Not applicable.

PREVENTION-EDUCATION

ACAM2000 and JYNNEOS™ are the two currently licensed vaccines in the U.S. to prevent smallpox and both may be effective in preventing or reducing the symptoms of mpox. See Vaccination section below for more information.

Educate all cases and contacts regarding the transmission and communicability of mpox and the actions required to prevent further transmission.

Cases

Provide isolation instructions to cases, including duration, use of PPE, hand hygiene and cleaning: [LAC DPH Isolation Instructions for People with mpox](#)

Cases with pets in the home should receive education: [LAC DPH Mpox FAQ Pet owners](#)

Provide information on decontamination of household surfaces – [Standard household cleaning/disinfectants may be used in accordance with the manufacturer's instructions](#)².

Contacts

Provide guidance to exposed individuals: [LAC DPH Mpox Guidance for Exposed Individuals](#)

OUTBREAK DEFINITION

Five or more laboratory-confirmed cases of mpox in persons associated with a sex-on-premises venue/event **OR** three or more laboratory-confirmed cases at shelters, correctional

facilities, group homes, similar settings within a 21-day period.

Refer to B73 Mpox Outbreaks for outbreak investigations.

INFECTION CONTROL IN HOSPITAL AND HOME SETTING

1. Infection Control in Hospital

Standard Precautions should be applied for all patient care, including for patients with suspected mpox. Activities that could resuspend dried material from lesions, e.g., use of portable fans, dry dusting, sweeping or vacuuming should be avoided. Place a suspect or confirmed mpox patient in a single-person room; special air handling is not required. Keep door closed. The patient should have a dedicated bathroom. Limit transport and movement outside of room to medically essential purposes. If transporting outside of room, have patient wear a medical mask and cover any exposed skin lesions with a sheet or gown. Intubation/extubation or any procedure likely to spread oral secretions should be done in airborne isolation room. PPE for healthcare workers entering room should include gown, gloves, eye protection (goggle or face shield) and NIOSH-approved particulate respirator equipped with N95 filters or higher. Maintain isolation for the duration of disease until all lesions have resolved, and a fresh layer of skin has formed.

Recommended [additional precautions](#)³ include: proper hand hygiene, correct containment and disposal of contaminated waste, care when handling soiled laundry, care when handling used patient-care equipment, and ensuring procedures are in place for cleaning and disinfecting environmental surfaces.

2. Isolation and Infection Control in Home

Home Isolation Instructions



LAC DPH home isolation instructions can be found at: [LAC DPH Isolation Instructions for People with mpox](#)

Hand Hygiene, Source Control and PPE at Home

- Hand hygiene (soap and water hand washing, alcohol-based hand rub) should be performed by infected persons and household contacts after touching rash material, clothing, linens, or other surfaces that may have had contact with rash materials.
- Skin lesions should be covered to the best extent possible to minimize risk of contact with others.
- Persons with mpox should wear a well-fitting mask or respirator when in close contact (e.g., within 6 feet) with other people.
- Household members should also wear a well-fitting mask or respirator when in close contact with the person with mpox.
- Disposable gloves should be worn for direct contact with lesions followed by hand hygiene.
- Laundry may be washed in a standard washing machine with warm water and detergent.
- Dishes and other eating utensils should not be shared and washed with warm water and soap.
- Contaminated surfaces should be cleaned and disinfected using standard household cleaning or disinfectants in accordance with the manufacturer's instructions.

DIAGNOSTIC PROCEDURES

Notification and consultation is required before submitting specimen for testing at the LAC DPH PHL. Specimens received without approval will not be tested. Label all specimens with a minimum of two patient identifiers and completely fill out the LAC DPH PHL test requisition form: [Test Request Form](#).

Depending on the stage of disease, specimen collection involves vigorous, firm swabbing of lesions (vesicular, pustular, or crusted) with paired sets of DRY synthetic swabs. Swabbing may rupture lesion to release fluid or pus

material.

1. **Polymerase Chain Reaction (PCR):** Dry swabs are required for non-variola orthopoxvirus PCR. Paired sets of dry swab samples, from the same lesion, are required for testing because mpox specific PCR confirmation is performed and clade differentiation is performed as a send-out test to CDC. Depending on the stage of disease, specimen collection involves vigorous, firm swabbing of lesions (vesicular, pustular, or crusted) with paired sets of DRY synthetic swabs. Do not place swabs in any type of transport media; use an empty sterile screw cap tube or sterile screw cap specimen cup for transport of swab.

Additionally, depending on the stage of the disease, scabs or lesion crusts may be removed for collection in a dry, sterile screw cap specimen container

2. **Serologic Testing:** Acute and convalescent Enzyme-linked immunosorbent assay (ELISA) serological testing is available through the CDC. One gold topped serum separator tube of any size. Refrigerate (2-8 °C) or freeze (-20 °C or lower) specimens within an hour after collection. Contact the LAC Public Health Laboratory prior to collection of serologic specimens from patients with suspected mpox.
3. Consultation for collecting and submitting any additional and/or other specimens (e.g., tissue samples) must be made with PHL Director (562-658-1300).

Note: Healthcare provider must wear proper PPE including gown, gloves, fit-tested N95 or respirator, and eye protection when having direct or indirect contact with mpox cases or suspects. Photos of lesions must be taken; include photos of the palms and soles regardless of the presence of lesions. DPH staff may be deployed for this task.

4. See [CDC Preparation and Collection of Specimens](#).

VACCINATION

Refer to B71 and [LAC DPH Mpox Vaccine Information for Health Professionals](#)



ADVERSE EVENTS MONITORING AFTER VACCINATION

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS).



Appendix 1a. Recommendations for Management of Persons with Possible Exposure to Someone with MPOX in community setting

Degree of Exposure	Recommendations		Exposure Characteristics
	Monitoring Frequency	PEP	
High	Three occasions: - During initial contact - Between 10-14 days from last exposure date - At 21 days from last exposure date	Recommended	<ul style="list-style-type: none"> Those whose mucous membranes or <u>broken</u> skin came into contact with: <ul style="list-style-type: none"> Lesions or body fluids of a person with MPOX; OR Materials that have contacted the lesions or body fluids of a person with MPOX. Examples <ul style="list-style-type: none"> any kind of sex, kissing, sharing cups, utensils, towels, clothing, and bedding. Providing or receiving physical care without using PPE. Engaging in sports with a very high degree of skin-to-skin contact. Include intimate partners, household members, physical care providers or recipients, and wrestling, grappling, or sparring partners.
Intermediate	Three occasions: - During initial contact - Between 10-14 days from last exposure date At 21 days from last exposure date#	Offered, if last exposure date was less than 14 days	<ul style="list-style-type: none"> Those whose <u>intact</u> skin or clothing came into contact with: <ul style="list-style-type: none"> The lesions or body fluids of a person with MPOX; OR Materials that have contacted the lesions or body fluids of a person with MPOX. Examples: <ul style="list-style-type: none"> Household members who might not otherwise be considered Exposed. (e.g., roommates) Persons who have gathered socially in crowded settings where limited clothing is worn. Persons who contacted the lesions or bodily fluids (or handled materials that contacted the lesions or body fluids) without using PPE (e.g., house cleaners, barbers, hairdressers, nail salon workers, massage therapists, and adult-care and child-care workers).
Low/ Uncertain	Not monitoring	Not recommended	<ul style="list-style-type: none"> Those who entered the living space of a person with MPOX (regardless of whether the person with MPOX was present), in the absence of meeting criteria to be considered Exposed or Potentially Exposed Examples: <ul style="list-style-type: none"> Guests into homes, dormitories, or other living spaces of cases. Schools and workplaces without sleeping quarters are not considered living spaces.
None	Not monitoring	Not recommended	<ul style="list-style-type: none"> No contact with the person with mpox, their potentially infectious contaminated materials, nor entry into their living space



Appendix 1b. Recommendations for Management of Healthcare Providers (HCP) with Possible Exposure to Someone with MPOX in healthcare setting

Degree of Exposure	Recommendations		Exposure Characteristics
	Monitoring Frequency	PEP	
High	Three occasions: - During initial contact - Between 10-14 days from last exposure date - At 21 days from last exposure date	Recommended	<ul style="list-style-type: none"> • Unprotected contact between an exposed individual's broken skin or mucous membranes and the skin lesions or bodily fluids from a patient with mpox (e.g., inadvertent splashes of patient saliva to the eyes or mouth of a person), or soiled materials (e.g., linens, clothing) -OR- • Being inside the patient's room or within 6 feet of a patient with mpox during any medical procedures that may create aerosols from oral secretions (e.g., cardiopulmonary resuscitation, intubation), or activities that may resuspend dried exudates (e.g., shaking of soiled linens), without wearing a NIOSH-approved particulate respirator with N95 filters or higher and eye protection
Intermediate	Three occasions: - During initial contact - Between 10-14 days from last exposure date - At 21 days from last exposure date	Offered, if last exposure date was less than 14 days	<ul style="list-style-type: none"> • Being within 6 feet for a total of 3 hours or more (cumulative) of an unmasked patient with mpox without wearing a facemask or respirator -OR- • Unprotected contact between an exposed individual's intact skin and the skin lesions or bodily fluids from a patient with mpox, or soiled materials (e.g., linens, clothing) -OR- • Activities resulting in contact between an exposed individual's clothing and the patient with mpox's skin lesions or bodily fluids, or their soiled materials (e.g., during turning, bathing, or assisting with transfer) while not wearing a gown
Low/ Uncertain	Not monitoring	Not recommended	<ul style="list-style-type: none"> • Entry into the contaminated room or patient care area of a patient with mpox without wearing all recommended PPE, and in the absence of any exposures above
None	Not monitoring	Not recommended	<ul style="list-style-type: none"> • No contact with the patient with mpox, their contaminated materials, nor entry into the contaminated patient room or care area